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VOICE OF THE ELECTRIC UTILITY INDUSTRY

LATE NEWS

The NRC cuts public radiation exposure limits by 80% around nuclear plants. Long Island Power Authority submits a $186-million plan to dissect Shoreham's licensed and unused $5.5-billion nuclear unit. Details in Feb.
EPA Admin. William Reilly says he'll work with the DOE, Council of Economic Advisors and Acid Rain Advisory Committee.
UtiliCorp United agrees to buy Centel's Kansas and Colorado electric utilities for $346 million.
INSIDE: Forecast 1991-5, p.18.

Clean Air Amendments of 1990

Utilities aim at fuzzy target

Mark T. Hoske
News Editor

WASHINGTON—There are only 1000 shopping days left before utilities face the first major compliance deadline for the Clean Air Act Amendment in four short years, Jan. 1, 1995, Phase I.

Shop early. Edison Electric Institute estimated that a utility starting scrubber permitting today may not achieve commercial operation until December 1996 (within the 1997 deadline).

There will be crowds. Phase 1 will affect 111 units altogether. In Phase I, utilities will add scrubber retrofits to 18,000 MW of generation, 36 units, at a total installed cost of $4 billion, said EEI. Others may scrub early.

Phase II scrubber retrofits could cover 30,000 MW, 60 units, at a cost of $6.75 billion by the year 2000.

And it will be expensive. The entire package, made law Nov. 15., could cost $25 billion/year, ultimately (*EL&P*, Dec.'90, p.1,7). Some estimates are much higher.

Total utility capital costs to meet the Phase I, 1995, deadline utilities may top $2 billion. Nine years from now, Phase II compliance, cumulative capital-investment costs could jump to $18 billion, according to some industry estimates. Utility sulfur dioxide emissions in the year 2000 will drop by half (to 9-million tons) from 1980 levels.

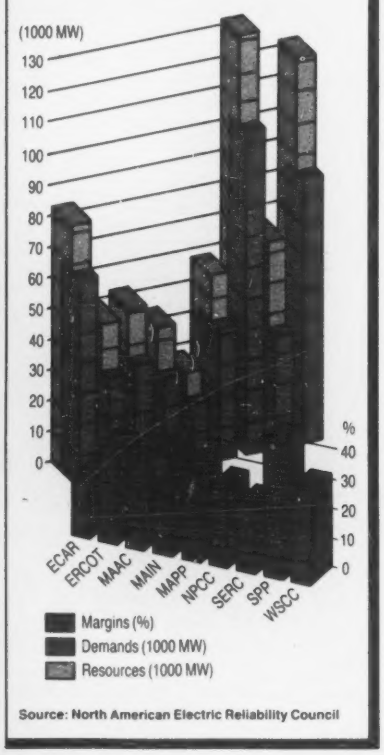
A whole litany of deadlines fall before, after and between those dates (see p.12 for requirements and dates).

Continued on page 12

Related Coverage

Acid Rain Advisory Council, p.3
Clean Air Working Group, p.10
Compliance deadlines, p.12

ESTIMATED WINTER 1990/91 NERC REGIONAL ASSESSMENTS



Source: North American Electric Reliability Council

Can emission trading work?

INDIANAPOLIS—At the extremes, the complex system of sulfur-dioxide emission credits trading could bring fortune for some utilities and financial hardship for others. For all, it will be a prudency issue with regulators.

Because of impending compliance deadlines, decision-making needs to be swift, integrated across utility departments and well-documented, say various experts.

Because of the Clean Air Amendments signed into law Nov. 15, utilities face a "radically different regime," said Andy Weissman, Swidler & Berlin, as part of a recent seminar here in November on emissions trading. "Not all companies realize the scope of the changes required.

"There are utilities represented in this room that will suffer major prudence disallowances before this [Clean Air compliance] is all over," he said.

With 700-pages of law, and regulations still forthcoming, "Utility regulatory commissions will have plenty of opportunities to second guess. You must get commissions to sign off on what you're doing to comply [with]."

Grim faces and nervous laughter at the sessions accentuated the expanse of the new law and the difficulty of proper and cost-effective compliance.

Many of the 80 people attending The Clean Air Act Amendments Seminar would be the ones facing criminal penalties if their companies violate the law. About 25 operating utilities were represented. Swidler & Berlin, AER*X Inc., and Energy Management Associates Inc. (EMA) sponsored the Nov. 16 meeting.

Successful compliance

Weissman said successful compliance with the new law:

- Mandates use of system-wide resources and analysis way beyond current efforts.
- Requires utilities to rely on financial and rate experts as much as technical ones to achieve least-cost compliance. Unit-specific solutions may not be the

Continued on page 12

'91 spending to fall, '92-'95 outlook good

BARRINGTON, IL—Capital spending for the nation's electric utilities—investor-owned, co-op, municipal, federal and other public units—is projected to increase in the five-year period 1991-1995. But the upturn won't begin until next year.

Capital spending in 1991 is projected to drop some 8.7 percent from actual 1990 investment in new and improved facilities. Current-year spending is projected to be $26.1 billion.

Overall, electric utility capital spending is projected to total $132.5 billion through 1995. This represents an increase of 3.8 percent as compared to the 5-year projection made last year.

These are two of the major trends revealed in *EL&P's* annual survey of electric utility capital spending and plans, completed last November.

The survey indicated that the nation's electric utilities will step up their generation expansion and improvement programs by about $5.0 billion over the five years, or 9.8 percent.

At the same time, expansion and improvement of transmission and distribution systems will just hold its own, compared with last year's 5-year projection, increasing only 0.7 percent.

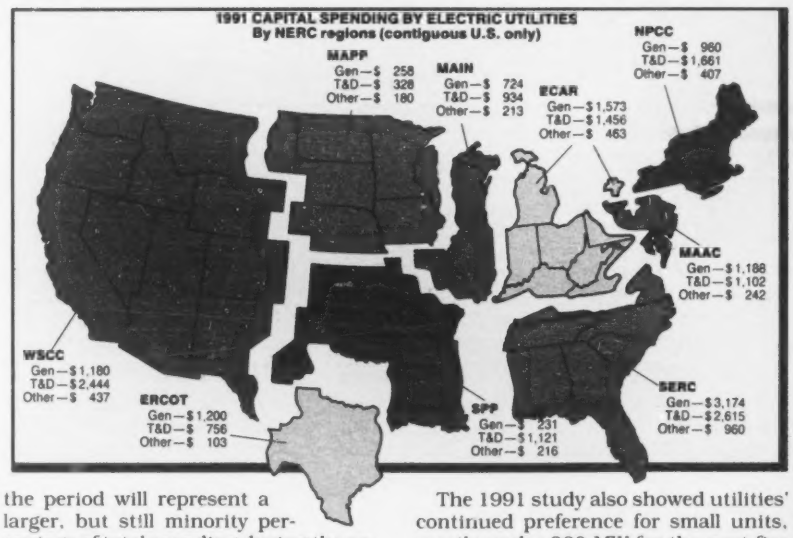
Other spending will decline by 3 percent during the period, to $15.3 billion.

As a result, generation spending during the period will represent a larger, but still minority percentage of total spending during the period. Generation spending will average 41.4 percent of capital investment each of the years.

Power delivery investment remains the largest investment activity area. Spending here will average 47.1 percent of total capital spending. Other spending will average 11.5 percent.

It is important to note, however, that the 5-year average share of investment devoted to generation during the present 5-year period is up from just a year ago, when it was 39.4 percent.

1991 CAPITAL SPENDING BY ELECTRIC UTILITIES
By NERC regions (contiguous U.S. only)



The 1991 study also showed utilities' continued preference for small units, mostly under 200 MW for the next five years. Combustion turbines remain the primary choice. Only seven baseload steam units are currently planned.

The fuel of favor is natural gas (47 of the "next" units), followed by oil (13 units). Coal (four units) is third.

Survey participants reported increased reliance on non-utility sources to meet system demand. Currently they report 13,421 MW of independent power produced energy under contract. Energy amounting to 15,559 MW is under contract with cogenerators.

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News Briefs

JILL MINNER, Special Projects Editor

FERC ruling to lower SMUD power costs

The **Sacramento Municipal Utility District** (SMUD) reported that the Federal Energy Regulatory Commission has ruled in favor of SMUD on some key transmission issues, which will in turn save the district money and give it broader access to power from other areas. The ruling affects transmission rate agreements between SMUD and **Pacific Gas & Electric Co.** SMUD said it will now pay $0.65 per kW/month as opposed to the $1.77 that PG&E wanted to charge for firm transmission service for power imported by SMUD from **Southern California Edison**. "The lower rate will save the district $2 million to $3 million a year," explained SMUD General Manager David Freeman. According to SMUD, FERC will also allow the district to export electricity to markets in the south without having to pay twice for transmission access. "The interruptible rate and broader access to competitive markets can help us hold the line on rates to our customers," Freeman added.

Nuclear Regulatory Commission sets fines

The U.S. Nuclear Regulatory Commission recently proposed the following fines:

Illinois Power Co.

A $112,500 fine for two violations of NRC safety requirements at the Clinton nuclear plant. The violations are related to the inoperability of the plant's two primary emergency diesel generators.

Pennsylvania Power and Light Co.

A $25,000 fine for alleged violations associated with deficiencies in evaluating and environmentally qualifying equipment in the Susquehanna Steam Electric Station, and failing to promptly correct those deficiencies once they had been identified.

U.S., Finland agree to information exchange

The United States and Finland recently agreed to an energy research and information exchange. Signing the five-year cooperative agreement in Washington were Bror Wahlroos, General Secretary, Finland Ministry of Trade and Industry, and John J. Easton Jr., U.S. Department of Energy Assistant Secretary for International Affairs and Energy Emergencies. The Office of Technical Assistance, Conservation and Renewable Energy will coordinate implementation of the agreement, according to DOE.

Idaho Power, Montana Power sign $65-million power supply contract

Idaho Power said it has signed a $65-million contract to provide **Montana Power** with a limited supply of electricity through early 1996. Under the agreement, which went into effect Dec. 1, 1990, Idaho Power will supply Montana Power with 75 MW from October through March of each year, and 25 MW from April through September. The contract ends March 31, 1996 and calls for annual deliveries of 437,450 MWh to Montana Power, with total sales of 2.4 million MWh during the term of the contract. According to Larry Crowley, Idaho Power manager of power management, the contract requires no new transmission service agreements or facilities. Crowley also said that deliveries to Montana Power may be interrupted if Idaho Power is unable to meet the demands of its own retail customers.

WEPCo receives final state approval on t-line

Wisconsin Electric Power Co. said it received final state approval for its $40-million Presque Isle to Quinnesec, MI transmission line project. "We're pleased that the Public Service Commission of Wisconsin approved a certificate of authority for us to begin work on the 80-mile line," stated Neil Palmer, WEPCo senior legislative representative for local relations. The line will run west and south from the Presque Isle Power Plant in Marquette, MI to join an existing line near Gwinn, MI. From there the new line will parallel the existing line south to the company's Plains substation at Quinnesec. "We hope to select a contractor soon to build the line," added Palmer.

CIPS plan sees no need for additional capacity

Central Illinois Public Service Co. (CIPS) predicts it will need to build no additional electric generating capacity within the next 20 years, according to a plan approved by the Illinois Commerce Commission. The utility's first least-cost energy plan covers almost all of its planning, investment and operations activities through 2010. CIPS predicts that, even if it sustains higher-than-ex-pected load growth, it should be able to satisfy customers' demands through conservation strategies or by buying excess electricity from other Midwestern utilities.

In addition to approving the plan, the ICC ordered CIPS to take a more aggressive approach to selling its surplus generating capacity, and to file a report detailing its long-term goals and strategies for sales of capacity to other utilities.

Minnesota Power says business is 'sound'

Minnesota Power Chairman, President and CEO Arend J. Sandbulte recently told the New York Society of Security Analysts that the utility's core electric business is "sound" and that, "Because of our strong competitive position, we think we have opportunities to expand our energy business in non-conventional ways such as cogeneration and the sale of other energy- or resource- conservation services in the region." Sandbulte also reported that the utility expects record kWh sales in 1990 and it does not plan to file for higher electric rates "until sometime in 1991, if then."

Minnesota Power is "in good shape" environmentally and anticipates little trouble complying with new federal clean-air laws aimed at reducing acid rain and nitrous oxides, because the company's major power plants burn low-sulfur coal and are equipped with scrubbers, according to Sandbulte. In addition, Minnesota Power balanced its supply and demand for the next decade recently, when the utility sold its 100-MW interest in the Clay Boswell power plant to **Wisconsin Public Power**.

Personnel briefs

Harold N. Scherer Jr. was appointed president and chief operating officer of **Commonwealth Energy System's** electric division. Scherer was formerly senior vice president of electrical engineering for **American Electric Power**.

Kansas City Power & Light Co. announced the appointment of Drue Jennings to chairman of the board. Jennings, who will continue to serve as president and chief executive officer, succeeds Arthur J. Doyle. Doyle will remain a member of the board of directors.

Jay S. Pifer was named president of **West Penn Power Co.** He replaces the retiring Richard S. Lashley.

The **Los Angeles Department of Water and Power** has chosen Daniel W. Waters as general manager. Waters takes over from Norman E. Nichols who has retired.

Richard J. Slember was selected as president, power plant businesses and executive vice president of Asea Brown Boveri Inc.

Philadelphia Electric Co. Chairman and CEO Joseph F. Paquette Jr. was elected to the board of directors of the Institute of Nuclear Power Operators.

South Carolina Electric & Gas Co. named Bruce D. Kenyon president and chief operating officer. Kenyon, who replaces the retiring T.C. Nichols Jr., was previously senior vice president-division operations at **Pennsylvania Power and Light Co.**

Branko Terzic was sworn in as a Federal Energy Regulatory Commissioner completing the five-member commission. Terzic, an engineer and former Wisconsin Public Service Commissioner, most recently served with the Milwaukee-based AUS Consultants.

The Institute of Electrical and Electronics Engineers, Inc. elected Merrill W. Buckley Jr. 1991 president-elect. Buckley is manager of program planning for the electronic systems division of GE Aerospace and Defense.

Robert C. Franklin, chairman, president and CEO of **Ontario Hydro**, was reelected chairman of the governing board of the World Association of Nuclear Operators-Atlanta Center.

Area utilities sponsor conservation program for home construction

The **New England Electric System, Boston Edison** and **Eastern Utilities Associates** are jointly sponsoring the New England region's first program to encourage construction of energy-efficient homes, condominiums, and multi-family dwellings with builder training and incentives.

The Energy-Crafted Home (ECH) program offers interested contractors a two-day informational workshop on energy-efficient building methods and material standards. Utility representatives then work with contractors to review building plans and determine a new unit's energy needs. Upon completion of one approved unit, a builder becomes a registered ECH contractor and is reimbursed for a portion of ECH-related building costs.

"Basically, the ECH program supplements current state building codes to include design and construction specifications for energy-efficiency," explained James Sugden, ECH program administrator for Boston Edison. "We feel an ECH home will be more attractive to a buyer and estimate a homeowner could save up to 30 percent on heating and cooling costs."

APS seeks reduction of civil penalty from NRC

Operators of the Palo Verde Nuclear Generating Station have asked the Nuclear Regulatory Commission for a reduction of the $75,000 civil penalty that the NRC proposed. Palo Verde said it had been cited for: 1) failure to notify the NRC regarding licensed operators who had developed potentially incapacitating medical conditions; and 2) inaccurate certification to the NRC that candidates for operator licenses had received complete medical examinations. William F. Conway, executive vice president-nuclear of **Arizona Public Service Co.**, requested that the penalty be reduced by $25,000. In a letter to the NRC, Conway stated that Palo Verde management "recognized the importance of this issue and acted promptly to implement comprehensive programs to control not only the operator medical examinations but all facets of licensed operator qualifications."

In This Issue — Highlights

Industry News

Clean Air: Prudency issues could influence sulfur-dioxide credit trading. 00
SDG&E/SCEcorp anti-merger decision: Companies object to advisory, non-final decision. 00
Utilities set more competitive bidding rules than states, says survey. 00
Rome Cable gets new life, commits to quality products and utility service. 27

T&D Technology

Computer system reduces storm outage time. 31
Substation shielding made easy with design software. 31
Telephone controls capacitor banks. 31
Mobile terminal increases productivity. 36

Generation Technology

TVA interconnects its nuclear plants with an upgraded telephone system. 38
Coal-derived liquid fuels may be just around the corner. 38
Zebra mussels stil spreading, but new methods may stop them. 39

Regular Features

Commentary and **Letters** 4
Labor/Management Concerns 16
Financial Performance 26
Calendar, Rate Activity 42, 43
Information/Control Systems 44
New Products, New Literature 45, 48
Readers' Service 48A
Regulatory Review 51
Management Methods 52

COMMENTARY

The Administration and NES

Will the Department of Energy's just-completed National Energy Strategy (NES) survive long enough to guide the U.S. economy to a safe, energy-sufficient future? Should we move on to firm energy policy dictated by the Bush Administration? The manner in which members of the public, and groups of individuals, respond to these questions, and the viewpoints their proponents espouse, will largely dictate how well the U.S. will meet its energy and environmental responsibilities over the next two decades.

For more than a year and a half, the Department of Energy has conducted a series of hearings around the country to learn how individuals, industry and special interest groups view energy usage, conservation and the pros and cons of other energy options, and the nation's energy future. DOE now has stirred the massive collection of data it has accumulated, refined the recipe and baked it slowly until done. Neatly wrapped for the occasion, the NES is the sum and substance of 13 hearings, the testimony of 448 invited individuals, 631 additional documents filed with DOE and unsolicited comments from 1259 people—the synthesis of 219,000 pages of proceedings.

From comments and reports from special-interest organizations that participated in the hearings, few will find the NES uniformly acceptable. The NES is accused by consumer groups of being pro-big-business. Environmental groups see the world's resources sacrificed on an altar of energy profits. Petroleum interests see the NES favoring other interests in the energy industry. The coal industry believes there is too much concentration of oil- and other coal substitutes and not enough support for advanced coal technologies. Lack of DOE endorsement of many large special interests' goals and objectives has further slashed the ranks of supporters. Trying to please everyone may result in pleasing no one. The Administration itself, the instigator of the whole program, is not pleased. The *Wall Street Journal* reported the Administration's displeasure with NES' endorsement of tighter auto fuel-efficiency requirements and other proposals to reduce oil use. The Administration is said to want energy developments to be dictated by market forces. Powerful White House chief of staff John Sununu and economic adviser Michael Boskin have been especially critical of DOE's efforts.

A strategy is similar to a trip-plan. It is a series of guidelines governing actions to bring about achievement of an objective, just as a roadmap guides a traveler to the successful end of a journey. But you can't measure progress until you know where you're going; in both cases, there must be a specific goal. In the case of NES, the objective is a sane, sufficient energy future. To get there, it would seem, it will be necessary to eliminate wrong turns, roadblocks and unnecessary risk. Unfortunately, market forces result from external developments, leaving the security of the nation's energy future to unplanned, substantially increased risk. This includes the possibility of a post Jan. 15 Mideast war or international police action and destruction of major oil fields.

As this is being written on Dec. 22, President Bush should just be receiving his "exccutive copy" of the National Energy Strategy report from Energy Secretary James Watkins. Copies are not being made available to the media, at least officially, at presentation time.

Eventually, however, a National Energy Strategy will be announced and copies released to the press. It will be touted on TV, radio and internationally in high places. What will be made public seems bound to reflect the Administration's desires and *laissez faire* attitudes; it may not reflect the goals and objectives, and the steps to achieve them, that were the intent of DOE's hearing program. Like many corporate CEOs who hire "consultants" to legitimize the actions they already have decided upon—not find out what *should* be done—it appears that President Bush ultimately will shape U.S. energy policy with his own two hands. The President, with his propensity to shoot from the hip without clearly focusing on the target beforehand, will most likely leave the nation to respond to the same short-sighted, comfortable alternatives offered a decade and a half ago. And we will find ourselves in the same costly, confused mess a decade hence that we're in now.

The names may change, and the cost of "new" solutions will be astronomically higher, but ultimately the painful realities will have to be addressed.

Robert A. Lincicome, Editor-in-Chief

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LETTERS

Hydro Quebec's big savings

The article (Nov. *EL&P*, p.27)is a good technical discussion of solutions to an overvoltage problem but the article did not accurately state the true business case. I believe there is another story to tell about the value to Hydro-Quebec of this investment.

Hydro-Quebec did not save $1 billion. They chose a lower-priced alternative. If a company reduces its current operating expenses then it has "saved" money and increased net income. The same idea applies to saving three years in construction time. Hydro Quebec chose an alternative that had a faster construction time but it did not increase net income.

The real story is to be found in the effect this decision had on the expected life of system equipment and Hydro-Quebec's customers. The cost to the company of having to replace failed arresters or damaged shunt reactors could be calculated. The system instability could affect reliability of service to Hydro-Quebec's customers and cause a loss of revenue. These costs could also be calculated.

The loss of revenue, increased capital costs and reduced customer satisfaction are all potential results of the overvoltage condition. These costs could be used in a cash flow analysis along with the proposed $200 million investment. The resulting net present value and internal rate of return could be used for making a decision about whether to go ahead with the investment. The resulting cash flow would be a more accurate estimate of the cost savings to Hydro-Quebec.

I look forward to reading EL&P articles each month. Keep up the good work.

Richard Turnock
Information Resources
Portland General Electric
Portland OR

Selecting batteries

The article by Mr. Herritty (*EL&P*, Nov. 1990, p. 30) on selecting the right battery was both informative and interesting. However, he left out some of the recent, significant findings concerning lead-acid battery technology.

Extensive research during the past 20 years at AT&T Bell Labs has proved that pure lead as a grid material offers some distinct reliability and performance advantages over lead alloys.

The AT&T Lineage 2000 Round Cell, which uses pure lead grids pasted with Tetrabasic lead sulphate as an active material is warranted for 40 years at 77°F operating temperature.

This design is unique enough to create a fifth category to the four described by Mr. Herritty.

I disagree with his conclusion regarding the application advantage of NiCd batteries, especially when the Lineage 2000 has a 30-yr service life at a constant operating temperature of 90°F.

One can use either the first cost criteria or the life-cycle cost and prove that the pure-lead grid, round cell is economically more attractive than any NiCd battery.

J. R. Shroff
AT&T Power Systems

Nuclear council formed; U.S., Soviets agree on reactor safety

WASHINGTON—The International Nuclear Societies Council was recently created to promote cooperation, information exchange and meetings for nuclear energy professionals worldwide.

Representatives of the American Nuclear Society (ANS) and several international nuclear societies met here on Nov. 16, 1990, to create the new group.

Members

Members also plan to undertake joint actions to further development and use of nuclear science and technology for peaceful purposes.

Included in the meeting were representatives from ANS, the European Nuclear Society (a federation of 18 European nuclear societies), and nuclear organizations of Australia, Brazil, Canada, Japan, Korea, Mexico and Taiwan. They approved the INSC bylaws and elected officers for a two-year term.

U.S./USSR cooperation

The first work plans prepared jointly by U.S. and USSR nuclear power plant experts to improve operational safety of Soviet reactors were approved by officials from the two countries in charge of the program on Nov. 19, 1990.

The intitiative is being carried out under the auspices of the U.S./Soviet Agreement on the Peaceful Uses of Atomic Energy, administered by the Dept. of Energy and under the Memorandum Cooperation on Civilian Nuclear Reactor Safety, which is administered principally by the Nuclear Regulatory Commission.

Over the previous six months, the Institute of Nuclear Power Operations (INPO) and U.S. utility experts worked jointly with their Soviet counterparts to demonstrate U.S. practices to the Soviets.

The groups also jointly developed detailed plans to implement the practices at a Soviet reactor.

Working groups

Three working groups are involved in the efforts, covering operation instructions, training, and management and operational controls.

Pleased with progress

Said Assistant DOE Secretary William H. Young, who led the U.S. delegation, "I am pleased with the progress that has been made and in the cooperation that has developed between the two countries. The action plans call for specific products to be developed in the next year as well as the development of plans and schedules for implementation of these operation safety improvements at Units 3 and 4 at the Novovoronezh nuclear power plant site beginning by the end of 1991."

Emergency instructions

He continued, "During 1991, fundamental symptom-based emergency operating instructions will be prepared. A diagnostic instruction will be developed that can be used by operators following an incident to assess plant condition and to select specific instructions to control the plant...In addition, a technique for monitoring important reactor parameters will be established for use in verifying that operator actions are successfully stabilizing the plant."

Utilities lead in competitive bidding programs: survey

COLUMBUS, OH—Utilities almost always prefer doing something themselves over having regulators telling them how to do it—competitive bidding seems no exception.

A recent industry survey indicates that utilities were more likely than regulators to have developed competitive bidding rules for power supply options.

"Quite a few utilities have competitive bidding rules in place without a commission having anything to do with it," said Ken Rose, of the National Regulatory Research Institute (NRRI). "It was kind of surprising." Thirty-three percent of utilities surveyed had rules in place, while 16 percent of state regulatory commissions did.

The North Atlantic area, with 12 states, had the most activity in the survey. Six states and 10 utilities there developed rules. The survey included 49 commissions and 86 investor-owned utilities.

Despite an increasing trend toward bidding rules, "There may be times when competitive bidding is not the most appropriate means" to obtain new resources, Rose warned about mandatory bidding. It might be inappropriate for regulators to force a bid under certain circumstances, or sometimes the utility might determine when bidding would be best, the report cautioned.

NRRI, the research branch of the National Association of Regulatory Utility Commissioners (NARUC), expected to release the study outlining these survey results in December 1990, Rose said.

Rose covered the report on implementing competitive bidding for the Staff Subcommittee on Electricity, at the 102nd Annual Convention of NARUC.

Details differ

Utilities and state regulators differed in details on bidding plans. The survey indicated that utilities were more likely than regulators to favor voluntary over mandatory bidding, allow the host utility to bid, and allow other utilities to bid.

Regulators favored setting guidelines for requests for proposal (RFPs), not precluding any generation, and not setting a maximum or minimum size for bids.

On disclosure practices, regulators appeared more likely than utilities to make selection criteria, price, and participants' identity available before and after selection.

Competitive Bidding Among Public Service Commissions and Investor-owned Utilities
(N = 49 PSCs; 86 IOUs)

Current Stage	% PSCs	% IOUs
Rules in place	16	33
Draft in place	4	5
Developing draft	12	15
No rules	67	47
Experience		
Have held solicitation	14	20
Are conducting solicitation	6	18
Plan to conduct solicitation	10	11

Source: 1990 NRRI survey on competitive bidding.

With contract provisions, regulators were more likely than utilities to specify an unsecured property lien, other secured property interests, the right to take over in default, and specific operations and maintenance standards.

Utilities and regulators were equally likely, both 50 percent, to include demand-side options in bidding.

Incentives for bidding

While positive and negative points of bidding vary, commissions can devise regulatory and economic incentives for voluntary bidding, the study pointed out. Regulatory rewards for utilities using commission-guided bidding for capacity additions could include:

- Automatic prudency.
- Higher rate of return.
- Regulation of the price of electricity and not the cost, allowing utilities to seek lower-cost electricity and keep the difference.
- Mark-ups to the cost of purchased power, rather than pass through of costs.
- Allow utility to provide financial assistance to non-utility generators.

More information on the survey and report may be obtained from NRRI, Ohio State University, 1080 Carmack Road, Columbus, OH, 43210-1002; (614) 292-9404.

More EMF research underway in Texas

WASHINGTON—NEMA, the National Electrical Manufacturers Association, is funding a research project to find out more about possible health effects of electric and magnetic fields (EMF).

The contractor, Dermigen, a consulting group based at the University of Texas Cancer Center, will make a critical analysis of the literature describing research on magnetic fields as a cancer promotor.

It is generally accepted that cancer develops in two stages—initiation and promotion. Once DNA is damaged by an initiator, a promoter may cause cells to grow into tumors.

Some scientists have postulated that magnetic fields may be cancer promoters. The NEMA study will examine this work critically.

"Once the research analysis is available, there will be a clearer direction of the specific kinds of future research needed," said Dan Shipp, NEMA vice president of public affairs.

For more information contact: NEMA, 2101 L Street NW, Washington DC, 20037, (202) 457-8452.

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Inquire R.S. 3

'91-'95 capital spending will climb

Survey says power delivery will get largest share of funds; actual 1990 spending topped projections.

Robert A. Lincicome
Editor-in-Chief

Improving financial conditions, predictable load growth and general optimism have combined to encourage the nation's electric utility organizations to increase their construction and capital spending plans for the five-year period 1991-1995, according to *EL&P*'s annual electric utility industry survey.

As was true over the past several years, investment in transmission and distribution facilities will command the largest share of available funds.

However, relative investment in generating capacity is expected to increase in the last two years of the period, although its share of total spending will be below that indicated in last year's survey.

Overall, this year's survey indicates that the industry will spend about 4 percent more in the current five-year period than reflected in last year's study. However, spending for 1991 is projected to be down more than 6 percent, from $27.9 billion to $26.1 billion, as compared with 1991 projections made in last year's study.

On the negative side, while generation investment is slated to increase, more utilities are commiting to small combustion-turbine additions, with natural gas and oil as fuel. Only a handful of baseload units currently are planned.

EL&P's survey of the electric utility industry—which covers all types of utilities—investor-owned, municipal, coop, federal and other public organizations—was completed in November. Data was obtained from participants in all North American Electric Reliability Areas and was projected to represent total industry spending.

1991 spending

Capital spending by the electric utility industry in 1991 is projected to reach $26.1 billion. While this reflects a small increase from what was projected for 1990 in last year's survey, the total will be some 6 percent less than last year's projections for 1991.

Projected spending for 1991 also will be below actual industry spending in 1990, which totalled $28.6 billion. Actual 1990 spending thus was about 10 percent higher than earlier estimates for the year.

The table at right shows the breakdown in 1991 spending, by function, for each NERC area. As shown, generation spending will total $10.5 billion, up 7 percent from last year's projected spending. Generation spending in 1991 also will be up from projected *actual* 1990 spending, which totaled $9.7 billion, just $0.1 billion below predicted 1990 generation spending.

Actual spending for generation expansion and upgrading in 1990 was below the $10-billion level for the first time in more than two decades.

Transmission and distribution spending, including substation investment, is projected to total $12.4 billion, which is down about 1.6 percent from last year's projected spending. Compared with extensions based on actual utility spending in 1990, 1991's projections indicate a spending level more almost 14 percent less than in 1990.

Other capital spending in 1991, $3.2 billion, would be down 6.55 percent from last year's estimates of 1991 spending and down 8.0 percent from last year's projections for 1990. Because *actual* 1990 spending for other classifications of work was $4.5 billion, substantially higher than projected, estimates of other spending in 1991 are down by a huge 27.8 percent from what utilities actually spent last year.

NORTH AMERICAN ELECTRIC RELIABILITY COUNCILS	
ECAR	East Central Area Reliability Coordination Area
ERCOT	Electric Reliability Council of Texas
MAAC	Mid-Atlantic Area Council
MAIN	Mid-America Interpool Network
MAPP	Mid-Continent Area Power Pool
NPCC	Northeast Power Coordinating Council
SERC	Southeastern Electric Reliability Council
SPP	Southwest Power Pool
WSCC	Western Systems Coordinating Council

1991 CAPITAL SPENDING BY NERC REGION
(Contiguous U.S. only—In millions of $)

Region	Generation	Substations	Transmission	Distribution	Other	Total
ECAR	$ 1,573	$ 150	$ 472	$ 834	$ 463	$ 3,491
ERCOT	1,200	111	162	483	103	2,059
MAAC	1,188	167	190	747	242	2,533
MAIN	724	39	284	611	213	1,871
MAPP	258	72	90	166	180	766
NPCC	960	312	302	1,047	407	3,028
SERC	3,174	519	546	1,550	960	6,748
SPP	231	192	307	622	216	1,569
WSCC	1,180	209	547	1,688	437	4,060
Total	**$10,487**	**$1,770**	**$2,900**	**$7,746**	**$3,222**	**$26,125**

CHANGING PATTERNS OF INVESTMENT
1991-1995

Function	1991	1992	1993	1994	1995
Generation	40.14%	40.04%	41.05%	43.30%	42.26%
T&D	47.52%	47.47%	47.13%	45.56%	47.77%
Other	12.33%	12.49%	11.82%	11.14%	9.97%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

5-year outlook improves

Although the immediate prospect for 1991 is less than projected a year ago, the general outlook for capital investment is favorable for the 5-year period running through 1995. Spending plans for the last year of the period is substantially lower than any of the other four years, which continues the trend of earlier surveys. Many utilities furnishing data for the first four years of the period simply said that they did not have the specifics for 1995 as yet. As a result, projections are much more difficult to make with confidence.

For the first four years of the period, 1991-1994, this year's study indicates that electric utility spending will total $107.8 billion. Projections of spending for those same years in last year's report were $101.7 billion. In other words, utilities currently are projected to invest 6 percent more capital for new and upgraded facilities in the 1991-1994 period than they did a year ago.

This compares with a 5.2 percent increase projected a year ago.

For the fifth year of the period, 1995, projections show that the industry plans investment in the range of $24.7 billion. While well under the average for the previous four years, or even the lowest single year, the amount is substantially higher that projections for the fifth year made a year ago. Fifth year spending this year for generation will be almost $1 billion higher and T&D investment will be $2.1 billion higher, while other spending will inch up $104 million. The increases will be 9.8 percent for power supply and 28.6 percent for power delivery.

Spending for generation expansion or upgrading is relatively consistent in the $10.5-plus billion range, except for 1994. That year, generation spending should rise to $12.1 billion as a number of short-term capacity additions are concluded.

On average, generation spending is projected to be $10.9 billion per year during the period. In last year's 5-year forecast, the average was $10 billion. Thus the industry now can be expected to invest, on average, 9 percent more than indicated a year ago.

This reflects the realization of many utility managements that new capacity must be added if their utilities are to meet growing demand. It is seen as a harbinger of a return to more "normal" times by many. The fact that so much of the capacity to be added is in small, quick-to-add units—gas-fired combustion turbines—is a concern in many quarters, however (see below).

Transmission and distribution spending for the 5-year period is expected to increase to $62,358, a gain of 0.7 percent. Substation spending, which is always understated because many utilities lump substation spending into either transmission or distribution, is projected to total just over $8 billion, up almost $1 billion from last year's study. Transmission investment will decrease by 0.6 percent, to $15.3 billion. Distribution spending also will fall, by 1.1 percent, to $39.1 billion. Average annual T&D spending at $12.5 billion is less than 1 percent above last year's projected annual T&D spending levels.

While *EL&P* feels comfortable with the combined power delivery spending figures, it is less so with the individual levels for the three catagories of investment it includes. As pointed out above, substation investment is understated because not all utilities separate such spending. By the same token, both transmission and distribution tend to be overstated because of the same tendency.

Patterns of investment

The 1991 study reflects a significant change in the pattern of spending from a year ago. In the previous study, gener-

PROJECTED 5-YEAR CAPITAL EXPENDITURES
(By NERC Region — In millions of $)

Region	1991	1992	1993	1994	1995	5-Year total
ECAR	$ 3,491	$ 3,322	$ 3,495	$ 3,576	$ 3,451	$ 17,335
ERCOT	2,059	2,125	1,067	1,302	1,441	7,994
MAAC	2,533	2,323	2,904	3,317	3,186	14,564
MAIN	1,371	1,810	1,721	1,687	1,001	8,090
MAPP	766	850	765	792	662	3,836
NPCC	3,028	3,115	3,023	2,806	1,129	13,101
SERC	6,748	7,492	7,973	8,631	7,007	37,851
SPP	1,569	1,531	1,600	1,692	1,999	8,391
WSCC	4,060	4,151	4,046	4,236	4,844	21,336
Total	**$26,125**	**$27,020**	**$26,594**	**$28,038**	**$24,720**	**$132,497**

PROJECTED 5-YEAR CAPITAL EXPENDITURES
(By Function — In millions of $)

Function	1991	1992	1993	1994	1995	5-Year total
Generation	$ 10,487	$ 10,819	$ 10,918	$ 12,142	$ 10,447	$ 54,813
Substation	1,770	1,865	1,584	1,427	1,357	8,003
Transmission	2,900	2,985	3,049	3,162	3,245	15,342
Distribution	7,746	7,976	7,901	8,184	7,206	39,013
Other	3,222	3,373	3,143	3,123	2,464	15,325
Total	**$26,125**	**$27,020**	**$26,594**	**$28,038**	**$24,720**	**$132,497**

ation spending represented less than 40 percent of total capital spending for all except the fifth year of the study, when it rose to 45 percent and again exceeded combined T&D investment. This year, generation's share of capital spending is above 40 percent in each of the five years, averaging 41.4 percent. But generation spending remains in the minority for all five years.

Capacity needs, additions

Seventy-two utilities reported their capacity plans in this year's study. These needs ran through the period after 2000. Of these, 44 (or more than 60 percent) said they had need of new capacity before the end of 1995. About 31 percent will need new capacity between 1996 and 2000. The balance, 25 percent, will not need new capacity until after the beginning of the next century.

NEXT CAPACITY NEEDED	
1991	12
1992	4
1993	4
1994	15
1995	9
1996-97	4
1998-2000	9
2000+	15

TYPE CAPACITY TO BE ADDED	
Baseload Steam	7 units
Combustion Turbine	34 units
Hydro	3 units
Combined Cycle	13 units
Other	10 units
Total	67 units

NEXT CAPACITY TO BE ADDED	
1991	3 utilities
1992	6 utilities
1993	4 utilities
1994	7 utilities
1995	13 utilities
1996-97	8 utilities
1998-2000	8 utilities
2000+	1 utilities
Total	50 utilities

Of the 72 utilities who say they will need new capacity, only 50, or 69 percent, reported specific plans for adding new capacity as of the survey time. Thirty-three of the 72, or 46 percent, will add their facilities before the end of 1995.

As concluded last year, the availability of independent power and energy from cogenerators remains a large factor in utility plans to meet system requirements. Participating utilities currently report contracts covering 13,421 MW of independent power producer capacity and 15,559 MW of cogeneration capacity.

Continued on page 25

FUEL FOR NEXT UNIT	
Gas	47 units
Oil	13 units
Coal	4 units
Other	9 units
Total	73 units

SIZE OF NEXT UNIT	
To 199 MW	44 units
200-299 MW	7 units
300-399 MW	2 units
400-499 MW	2 units
>500 MW	5 units

Regional Capital Spending Projections—1991-1995

ECAR

	Gen	T&D	Other
1991	$ 1,573	$ 1,455	$ 463
1992	1,347	1,541	434
1993	1,627	1,458	410
1994	1,716	1,484	375
1995	1,596	1,576	279
Total	7,859	7,515	1,962

Utilities that make up the **East Central Area Reliability Council** plan capital investment totalling $17.3 billion from 1991 through 1995. This represents a 3.2-percent decrease from the five-year period reported in last year's report. The reduction results primarily from scale-backs of plans in the first two years of the period, compared with last year's forecast. However, considering the magnitude of the predicted increase in last year's projections, the small downward movement represents only fine tuning of spending plans, not any substantive change in programs.

ERCOT

	Gen	T&D	Other
1991	$ 1,200	$ 755	$ 103
1992	1,285	727	113
1993	513	470	84
1994	792	422	88
1995	760	563	119
Total	4,550	2,937	507

Utilities in the **Electric Reliability Council of Texas** will increase their total 1991-1995 capital spending to $8.0 billion, up by 11.7 percent from last year's 5-year projections. Primary increase is in generation, which will climb nearly $1.5 billion, or 47 percent, to $4.6 billion. Power delivery spending will fall by about $195 million, to $2.9 billion. Other spending will decline 45 percent.

ERCOT programs, which we projected to be artificially low in the 1989 forecast, rebounded to normal last year and remain so in this study.

MAAC

	Gen	T&D	Other
1991	$ 1,188	$ 1,103	$ 242
1992	1,225	1,145	253
1993	1,438	1,192	274
1994	1,529	1,400	388
1995	1,383	1,550	253
Total	6,763	6,391	1,410

Mid-Atlantic Area Council utilities will spend more than $14.6 billion for capital improvements and expansion in 1991-1995. The total reflects a 14 percent overall decline in capital investment, from $17 billion projected in last year's study. Generation will increase by $318 million, or 5 percent, but power delivery programs will be cut by $1.5 billion. Other spending also will be slashed by $1.3 billion.

MAAC utilities are primarily committed to small-size combustion turbine additions, mostly under 200 MW, natural-gas and oil based, during the period.

Utilities in the **Mid-America Interpool Network**, comprising utilities in Illinois, Eastern Wisconsin and Northeastern Missouri, will increase investment in generation facilities while cutting back T&D and other improvement programs. Generation spending will increase by 24 percent, to $3.2 billion over the period. Investment in T&D programs will decline by $866 million, 17.8 percent, to $4.1 billion, while other programs will be cut back by 18.8 percent, to $857 million. Generation additions will be largely small gas turbines.

MAIN

	Gen	T&D	Other
1991	$ 724	$ 933	$ 213
1992	698	925	187
1993	647	916	158
1994	665	844	178
1995	491	390	120
Total	3,224	4,008	857

Mid-Continent Area Power Pool utilities will step up their capital expansion and improvement programs across the board in the 1991-1995 time period. Generation spending will climb by 46 percent, to $1.4 billion, while T&D investment will increase 21.4 percent to $1.7 billion. Gas turbines are the choice for capacity additions. Other capital investment will more than double, from $300 million to $780 million. Overall, capital investment during the period will jump $1.2 billion, or 45.9 percent, to $3.8 billion.

MAPP

	Gen	T&D	Other
1991	$ 258	$ 328	$ 180
1992	297	374	179
1993	280	340	145
1994	283	355	154
1995	233	307	122
Total	1,351	1,705	780

U.S. utilities located in the **Northeast Power Coordinating Council**, face tight capacity margins and are increasing capacity-addition plans by 16.7 percent, to $4.0 billion. Confronted with demand growth greater than their own capacity additions, NPPC utilities will become increasingly dependent on non-utility generation and adequate power delivery capacity, yet T&D expansion plans have been cut back by more than $1.1 billion, to $7.3 billion. The 5-year investment projection is about the same as last year's.

NPCC

	Gen	T&D	Other
1991	$ 960	$ 1,661	$ 407
1992	1,015	1,689	411
1993	951	1,686	386
1994	785	1,612	409
1995	308	628	193
Total	4,019	7,275	1,807

SERC

	Gen	T&D	Other
1991	$ 3,174	$ 2,615	$ 960
1992	3,606	2,803	1,083
1993	4,126	2,816	1,031
1994	4,910	2,847	874
1995	4,042	2,271	693
Total	19,858	13,352	4,641

Utilities making up the **Southeast Electric Reliability Council** continue to lead the nation in system expansion and improvement investment and will spend more than one in every four dollars invested in U.S. electric system additions in the 5-year period. SERC utilities will spend $19.9 billion for generation, an increase of 4 percent from last year's projections and 36 percent of all generation spending in the U.S. 1991-1995. Power delivery spending will increase 14.7 percent to $13.4 billion. Other spending will jump a whopping 83 percent, to $4.6 billion.

SPP

	Gen	T&D	Other
1991	$ 231	$ 1,121	$ 216
1992	212	1,078	241
1993	233	1,127	240
1994	316	1,151	226
1995	426	1,310	263
Total	1,419	5,787	1,185

Southwest Power Pool members will decrease generation spending and increase T&D expansion programs 1991-1995. Generation spending will fall 18.5 percent, to $1.4 billion, as SPP utilities seek to reduce their current 30 percent-plus reserve margin. Much of their generation investment will go toward upgrading and improving existing units. T&D investment will climb 29.2 percent, to $5.8 billion. Spending for miscellaneous purposes will more than double, to $1.2 billion.

WSCC

	Gen	T&D	Other
1991	$ 1,180	$ 2,444	$ 437
1992	1,133	2,545	473
1993	1,105	2,527	413
1994	1,145	2,659	432
1995	1,209	3,214	421
Total	5,772	13,389	2,176

Electric utilities comprising the **Western States Coordinating Council** constitute the second largest area of U.S. electric system expansion and improvement. The WSCC utilities will invest more than $21.3 billion for new and upgraded facilities in the 1991-1995 period. This reflects an increase of 1.2 percent. However, both generation and T&D investment will increase solidly. Generation investment will rise almost 36 percent, to $5.8 billion. Power delivery spending will climb 7.3 percent to $13.4 billion.

Energy effiency: new home code, no nukes and abroad

BARRINGTON, IL—Several energy efficiency developments follow.

More efficient homes

The Edison Electric Institute became the first industry sponsor of a new energy efficiency program by the National Association of Home Builders (NAHB). The National Voluntary Environmental and Energy-Efficient Home Program's goal is to cut the amount of energy new U.S. homes use for heating and cooling by half over 1980 levels by 2000.

The program will be administered at the state level to account for climate and building-code differences.

EEI said electric utilities nationwide spend more than $1 billion/year to encourage efficient customer energy use.

In other news, Public Citizen released a statement opposing the administration's anticipated National Energy Strategy and issued a statement called for a 25-30 percent reduction in energy consumption by 2010 and a simultaneous quadrupling of the energy provided by renewable energy resources.

The group, founded by Ralph Nader and claiming support of 70 other citizen-action groups, advocates cutting oil and coal use in half over in 20 years and "accelerating the de facto phase-out of nuclear power."

While Public Citizen admits "some attention is given to energy conservation and renewable energy technologies, the draft [NES] plan proposes only limited government initiatives to promote these options," the group said.

Developing efficiency help

The Global Energy Efficiency Initiative (GEEI) will promote effiency use in developing countries and reduce harm to local and global environments, announced Ronald W. Roskens, administrator or the U.S. Agency for International Development (A.I.D.).

To start GEEI, an ad hoc working group is coordinating a study of energy efficiency possibilities for developing countries and devising a strategy for U.S. assistance. Members of the group include A.I.D. and DOE.

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from page 19

Forecast...

Utilities currently planning additions to generation capacity continue to seek small, easy-to-finance...and generally quick-to-get-on-line...units. They reported 44 units currently planned with capacities of less than 200 MW. Eleven units fell in the 200-499 MW range. Only 5 units currently are planned with capacities in excess of 500 MW.

As might be expected from this information, most of the units planned are combustion turbines or combined-cycle units. Forty-seven of the 67 units planned by particpating utilities fall into these catagories. Only seven units will be baseload steam, three hydro and the remaining 10 "other" types of generating units, including windpower.

In terms of fuels for planned units, 47 utilities say natural gas is their choice. Somewhat surprisingly, however, 13 units are planned to burn oil, despite the obvious problems and concerns about its use today. Only four units reported in the survey will burn coal.

Improvement programs noted

A total of 81 plant improvement programs were reported in this year's survey. This reflects a small decrease from last year, when 85 utilities reported such programs. Life extension programs declined by 20 percent, to 24 utilities. Uprating programs also declined, from 16 utilities to 13. The number of utilities reporting modernization programs remained the same at 17. Other programs increased from 22 to 27.

A substantial number of utilities did not report specific improvement programs, but said that they had stepped up their maintenance programs. This may reflect a response to the recent Wisconsin Electric Power decision.

Major disturbances decline

Only one utility reported it had suffered a full-scale blackout last year. This is much lower than reported in last year's study, when eight utilities had been hit with blackouts. The number that encountered rolling brownouts remained about the same as a year earlier, 77 compared with 75 in 1989.

Clean Air Costs
1991-2000 (Billions)

1993	$0.8
1994	$0.8
1995	$1.1
1996	$3.2
1997	$0.4
1998	$3.2
1999	$8.9

Source: estimates of capital expenditures from the Edison Electric Institute

from page 11

Externalities...

This resolution on policy formation was sponsored by Commissioner William A. Badger of Maryland.

- Establish NARUC environmental subcommittees of current standing committees, at the option of those committees. This was a substitution for an attempt to amend the constitution to create a new standing committee. Commissioners argued that such a committee, with two members of each present committee, would not deal with environmental issues any more clearly, but encumber the already difficult task of policy formation from the diverse group.
- Honor the services of retiring commissioners Perry Swisher of Nevada, and Frederick R. Duda, California.